

WHAT IS CLAIMED IS:

1. A method for enhancing an image represented by a plurality of pixels, the method comprising:
  - obtaining color code values for each of a plurality of pixels;
  - 5 determining whether a pixel has a color code value within a predetermined range, wherein the predetermined range has been identified as being adversely affected by a first processing transformation; and
  - applying the first processing transformation to the pixel only if it does not have a color code value which falls within the range.
2. The method as recited in claim 1, wherein the first processing transformation comprises a spatial processing transformation.
3. The method as recited in claim 1, wherein the first processing transformation comprises a color correction transformation in a first color space.
4. The method as recited in claim 1, wherein the predetermined range comprises color code values representing yellow colors.
5. The method as recited in claim 1, wherein the color code values comprise  $L^*a^*b^*$  color space values.
6. The method as recited in claim 1, wherein the first processing transformation comprises a noise reduction transformation.
7. The method as recited in claim 6, wherein the noise reduction transformation comprises a sharpening operation.
8. The method as recited in claim 1, wherein the steps are conducted by a digital film processing system.

9. The method as recited in claim 1, wherein the steps are conducted by an image scanner system.

10. The method as recited in claim 1, further comprising:

applying a second processing transformation to the pixel if it does have a color code value which falls within the range.

11. A method for enhancing an image represented by a plurality of pixels, the method comprising:

applying light to a film medium which includes an image;

5 recording at least one value representing the amount of light from the film medium;

transforming the at least one value to a set of code values representing a color;

10 determining whether the color falls within a predetermined color range, wherein the predetermined color range has been identified as being adversely affected by a first image enhancement transformation; and

applying the first image enhancement transformation to the set of code values only if the color does not fall within the predetermined color range.

12. The method as recited in claim 11, wherein the first image enhancement transformation comprises a spatial transformation.

13. The method as recited in claim 11, wherein the predetermined color range comprises color values representing yellow colors.

14. The method as recited in claim 11, wherein the predetermined color range comprises color values representing achromatic colors.

15. The method as recited in claim 11, wherein the at least one value represents the amount of light reflected from the front of the film medium, and wherein the transforming step comprises:

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- 5        recording a back value representing the amount of light reflected from the back of the film medium;
- recording a transmitted value representing the amount of light transmitted through the film medium; and
- transforming the front, back, and transmitted values to the set of code values.

16.    A method for enhancing an image represented by a plurality of pixels, the method comprising:

- obtaining original code values for a plurality of pixels;
- 5        transforming the original code values to first code values in a first color space;
- identifying which pixels have first code values which fall within a predetermined range of the first color space; and
- for the identified pixels, transforming the original code values for the pixels to second code values in a second color space, applying a color correction
- 10       process to the second code values, and transforming the corrected second code values to a final color space.

17.    The method as recited in claim 16, wherein the first color space comprises the HSI color space.

18.    The method as recited in claim 16, wherein the first color space comprises the  $L^*a^*b^*$  color space.

19.    The method as recited in claim 18, wherein the predetermined range comprises first code values having a  $b^*$  value greater than about 70.

20.    The method as recited in claim 16, wherein the first color space comprises the  $L^*a^*b^*$  color space and the second color space comprises the HSI color space.

21. The method as recited in claim 16, further comprising:  
for the pixels which do not have first code values which fall within the predetermined range, color correcting the first code values, and transforming the corrected first code values to the final color space.

22. The method as recited in claim 16, wherein the steps are conducted in an image scanner.

23. The method as recited in claim 16, wherein the steps are conducted in a digital film processing system.

24. The method as recited in claim 16, further comprising:  
detecting reflected light from an image to obtain the original code values.

25. A method of color correcting image data, the method comprising:  
obtaining color code values for a plurality of pixels representing an image;  
determining which pixels have color code values which fall within a predetermined neutral color range; and

5 applying a color correction process to the pixels which have color code values which do not fall within the predetermined neutral color range.

26. The method as recited in claim 25, further comprising:  
applying a gray-correction process to the pixels which have color code values which do fall within the predetermined neutral color range.

27. The method as recited in claim 25, wherein the color code values are in the  $L^*a^*b^*$  color space.

28. The method as recited in claim 27, further comprising:  
adjusting the  $a^*$  and  $b^*$  values of the pixels having color code values which fall within the predetermined neutral range, such that the  $a^*$  and  $b^*$  values of these pixels are closer to zero.

29. The method as recited in claim 25, further comprising:  
transforming the color code values to an output color space.

30. A color imaging system comprising:  
a digital image capture device adapted to capture color code values for  
each of a plurality of pixels; and

5 an image processing device in communication with the digital image  
capture device, wherein the image processing device is adapted to determine  
whether a pixel has a color code value within a predetermined range which has  
been identified as being adversely affected by a first processing transformation,  
and to apply the first processing transformation if the pixel does not have a color  
code value which falls within the range.

31. The color imaging system as recited in claim 30, wherein the digital image  
capture device comprises a scanner.

32. The color imaging system as recited in claim 31, wherein the scanner  
comprises a film scanner.

33. The color image system as recited in claim 30, wherein the image  
processing device comprises a computer.

34. The color image system as recited in claim 30, wherein the image  
processing device is further adapted to apply a second processing transformation  
if the pixel does have a color code value which falls within the range.

35. The color image system as recited in claim 34, wherein the first processing  
transformation comprises a color correction transformation in a first color space,  
and the second processing transformation comprises a color correction  
transformation in a second color space.

36. The color image system as recited in claim 30, wherein the predetermined range comprises neutral color codes.

37. The color image system as recited in claim 30, wherein the predetermined range comprises yellow color codes.

38. The color image system as recited in claim 30, wherein the first processing transformation comprises a color correction transformation.

39. The color image system as recited in claim 30, wherein the first processing transformation comprises a spatial processing transformation.

40. A stored image data file comprising:

a first set of pixels, wherein each pixel in the first set has a color code representing a predetermined color which is adversely affected by a first image processing transformation; and

a second set of pixels, wherein each pixel in the second set has a color code representing a color which is not adversely affected by the first image processing transformation, and wherein each pixel in the second set has a color code which has been transformed by the first image processing transformation.

41. The image data file as recited in claim 40, wherein each pixel in the first set has a color code which has been transformed by a second image processing transformation.

42. The image data file as recited in claim 41, wherein the first image processing transformation comprises a color correction transformation in a first color space, and the second image processing transformation comprises a color correction transformation in a second color space.

43. The image data file as recited in claim 42, wherein the first color space comprises the L\*a\*b\* color space and the second color space comprises the HSI color space.

44. The image data file as recited in claim 40, wherein the first image processing transformation comprises a sharpening operation.

45. The image data file as recited in claim 40, wherein the predetermined color comprises yellow.